

# Modeling Sustainable Design in Building Construction



Figure 1. Artist's Rendering of the Strategic Computing Complex at LANL: 300,000 square-feet and three stories



LANL Project Team

Figure 2. First row (left to right): Rachel Taylor, Rose Montañó. Second row: Mark Harris, John Bretzke, Al Guerra, Laura Hanson, Steve Barret, Tom Fitzgerald, Judson Ford. Third row: Nick Nagy, Steve Day, Phil Sena, Myron Koop, Bill Bryant. Top of photo: David McBrayer



Figure 3. A design change to 3 large cooling towers resulted in efficiency gains



Figure 5. 34,000 cubic yards of soil and 2,600 tons of asphalt were collected during deconstruction and stockpiled for reuse

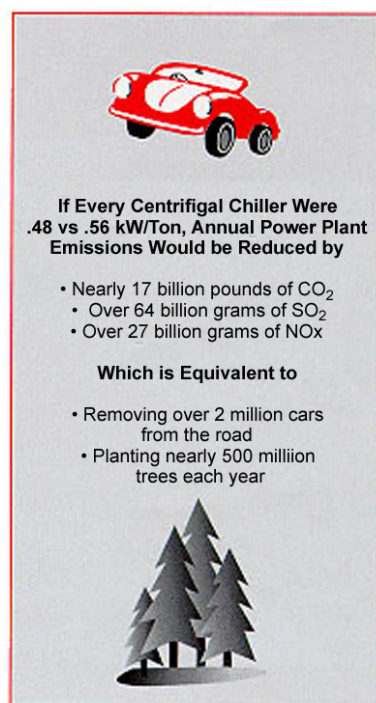


Figure 4.



Figure 6. Looking west at the Strategic Computing Complex and the foothills of the Jemez Mountains

Table 1.

Anticipated Annual Water Use and Cost Savings through Additional Treatment			
FY 2002-2004		FY 2005	
Current Treatment	Additional Treatment	Current Treatment	Additional Treatment
156 acre-feet	87 acre-feet	462 acre-feet	257 acre-feet
<b>69 acre-feet (22.5 million gallons) water saved</b>		<b>205 acre-feet (66.8 million gallons) water saved</b>	
Cost		Cost	
\$277,000	\$214,000	\$816,000	\$242,000
<b>\$63,000 saved</b>		<b>\$574,000 saved</b>	

Based on \$2.17/1000 gallons and 326,000 gallons/acre-foot.

Table 2.

Recycled Content Percentages of Materials Used in the SCC	
Particleboard (100%)	Structural Steel (96%)
Ceiling tiles (42%)	Ceramic wall tiles (8%)
Ceiling suspension steel (25%)	Roofing sealant insulation (10%)
Acoustical wall treatment boards (50%)	Fiberglass wall insulation (25%)
Roofing insulation (polyisocyanurate) (9%)	